

JAMES R. WINGFIELD, Ph.D., C.R.E.

Senior Reliability & Safety Consultant

ASQ Certified Reliability Engineer

CRE 02736

EDUCATION

Two years of undergraduate study in Engineering Sciences, Purdue University, 1965

B.S. Mathematics/Physics, Illinois Institute of Technology, 1970

M.S. Degree in Mechanical Engineering, University of Arizona, 1988

Ph.D. Engineering, California Coast University, 1994

HONORS

Engineering Honor Roll - Purdue University

Graduated with distinction - Illinois Institute of Technology

PROFESSIONAL SOCIETIES

American Society for Quality (ASQ)

Reliability Division

American Society of Safety Engineers (ASSE)

American Society of Mechanical Engineers (ASME)

PROFESSIONAL AFFILIATIONS

Illinois Institute of Technology - Adjunct Professor, Department of Mechanical and
Acrospace Engineering

PROFESSIONAL DEVELOPMENT - SEMINARS

1. "28th Annual Reliability Engineering Institute," The University of Arizona, October 1990, Tucson, Arizona.
2. "Random Vibrations Seminar and Workshop," The University of Arizona, April 1992, Tucson, Arizona.
3. "Fault Tolerant Design for Improved Reliability," Department of Engineering, The University of Wisconsin, August 1992, Madison, Wisconsin.
4. "Application of Failure Mode and Effect Analysis to the Design Manufacture of Medical Devices," College of Engineering, University of Wisconsin, February 1 - 3, 1995, Orlando, Florida.

EMPLOYMENT

1. Employer: Triodyne Inc., Niles, Illinois
 Business: Consulting Engineers and Scientists
 Position: Senior Reliability and Safety Consultant
 Duration: 1987 - present
 Duties: Failure analysis, electro mechanical and mechanical reliability and safety engineering analysis.

2. Employer: Travenol Laboratories, Baxter Healthcare, Round Lake, Illinois
 Business: Manufacturer of devices for the health care industry
 Position: Manager Corporate Hardware Reliability Engineering
 Duration: 1979-1987
 Duties: Managed group of electrical and mechanical engineers. Responsibility for the Safety and Reliability of all Travenol designed and vendor procured hardware systems and equipment. Additional responsibility for approving and accepting all in-house and vendor designed manufacturing equipment for use in production facilities. Performed Systems Hazard Analysis for critical devices to establish the production of hazards related to equipment/component failures, human factors, and environmental incursions. Performed Failure Modes and Effects Analysis (FMEA) to validate fail safe design approaches. Conducted failure investigations on products in field. Consultant to medical and legal staff on regulatory and potential liability issues.

3. Employer: IIT Research Institute (IITRI)
 Business: Research affiliate of the Illinois Institute of Technology performing contract studies for government and industry.
 Position: Research Engineer
 Duration: 1961-1975, 1977-1979
 Duties: Participated in experimental materials and structural analysis research projects for the National Aeronautical Space Administration and the U.S. Air Force. Performed reliability engineering studies for customers including the Aviation Systems Command and the Federal Aviation Administration. Performed safety studies for the Consumer Product Safety Commission including an evaluation of protection alternatives for electrically operated power tools and a study of nationwide product related accident patterns. Project engineer in the Medical Sciences and Engineering Division conducting research programs in medical device applications for the National Institute of Health.

4. Employer: Triodyne Inc., Niles, Illinois
 Business: Consulting engineers and scientists
 Position: Senior Research Engineer
 Duration: 1975-1977
 Duties: Performed engineering investigations into product and industrial equipment failures and personal injury cases. Provided supporting investigations and research into applicable standards and engineering specifications.

5. Employer: Standard Railway Corporation (STANRAY) Chicago, Illinois
 Business: Railroad and diversified industrial and commercial products including FRP Boats, Precision Machine Parts, Aircraft Ground Facilities, and Engineered Plastic Products, Fabricator of Structural Steel and Aluminum Highway Bridges.
 Position: Machine Designer
 Duration: 1959-1961
 Duties: Designed experimental prototypes of production equipment. Designed and conducted industrial experiments to optimize the structural properties of fiber reinforced plastic materials. Participated in the design and development of new products; FRP Truck cabs, corrugated structural members and specialized FRP applications.

6. Employer: O.C. Kraft Engineering, Gary, Indiana
 Business: Electrical Engineering Consultants
 Position: Draftsman
 Duration: 1958-1959
 Duties: Plant layout, facilities engineering, electrical control circuit diagraming.

7. Employer: Inland Steel Co., East Chicago, Indiana
 Business: Basic Steel Production
 Position: Instrument Technician/Blast Furnace Engineer
 Duration: 1953-1957
 Duties: Install, service, maintain process recording and controlling instrumentation in all areas of the steel manufacturing process including: Blast Furnace and Open Hearth, Rolling Mills, Tin Mills, and all associated Analytical Laboratories.

8. Employer: Continental Machine, East Chicago, Indiana
 Business: Industrial Machine Shop
 Position: Machinist - Apprenticeship program
 Duration: 1952-1953
 Duties: Operated lathes, boring mills, shapers, surface grinders and other machine shop equipment under the apprenticeship program.

9. Employer: Elgin National Watch Co., Elgin, Illinois
 Business Manufacturer of watches and precision industrial parts
 Duration: 1950-1951
 Duties: Assembled precision parts in the industrial products division - completed 12
 month program in watchmaking, Elgin Watch College.

SCIENTIFIC PAPERS AND STUDIES

1. "Fracture of Brittle Materials, Transient Mechanical and Thermal Loading," R. L. Barnett, P. Hermann, and J. Wingfield, AFFDL-TR 66-220, March 1967.
2. "Operations Research Analysis of Aircraft Noise Abatement Users Manual," J. Lauer, J. Wingfield, and A. Juskys, June, 1968.
3. "Statistical Investigation of Auto Accident Insurance Data," I. Fieldhouse, J. Wingfield, September, 1968.
4. "A Methodology for Forecasting the Distribution of Basement Planned Areas in Future Construction," D. I. Feinstein and J. Wingfield, Office of Civil Defense, 1970.
5. Development of Implantable Medical Valve Devices, E. E. Brueschke, M.D., J. Wingfield, and J. Maness, Proceeding of the 25th Annual Conference on Engineering in Medicine and Biology, 14:337, Oct. 1973.
6. Development of Implantable Medical Valve Devices, E. E. Brueschke, M.D., J. Wingfield, and J. Maness, American Society for Artificial Internal Organs 1973 Abstracts, Volume 2, Page 8, Boston, April 7-9, 1973.
7. Development of a System Reliability Corporate Memory, J. Wingfield, RADC TR-77-419, January, 1978, Rome Air Development Center, Air Force Systems Command, Griffiss Air Force Base, N.Y. 13441.
8. Biomaterial Requirements for Implantable Medical Devices, J. Maness, E. E. Brueschke, M.D., and J. Wingfield, Proceedings of the 26th Annual Conference on Engineering in Medicine and Biology, 15:204, October 1974.
9. "Computer Integration Into Product Design, 1987," Juran Quality Control Handbook, J. Wingfield contributing author, 1987.
10. "A Methodology for Sizing Field Experiments," J. Wingfield, 1987, subcontracted study for Reliability Technology Associates and the Gas Research Institute.

11. OSHA Training Institute "Introduction to Safety Hazards," Recognition of Safety Hazards in the Workplace, J. Wingfield, 1987.
12. University of Arizona, Masters Thesis, "A Comparative Evaluation of Safe Design Alternatives." (1988).
13. "Fault Tree Approach to Hazards Analysis," Guest Lecturer, Illinois Institute of Technology, October, 1989.
14. "Reliability and Safety of Medical Devices: Introduction," Triodyne Safety Brief, v.5 #3, October 1989.
15. "Statistical Methods in Brittle Fracture Analysis," Guest Lecturer, Illinois Institute of Technology, Fall Semester, 1990.
16. "Product Design Assurance: Measures of Performance," Guest Lecturer, Illinois Institute of Technology, Spring Semester, 1991.
17. "Systems Hazards Analysis for a Fetal Contraction Monitoring Device," subcontracted study for Caremark and Orion Medical, April, 1991.
18. "Wheel Guard - Impact Study," Mi Jack Products Consultation Report, February, 1992.
19. "Reliability and Safety of Medical Devices: Part II," Triodyne Safety Brief, v.8 #2, February, 1993.
20. "Probabilistic Approach to Minimum Weight Design," guest lecturer, Illinois Institute of Technology, Fall Semester, 1993.
21. California Coast University, Ph.D. Dissertation, "An Investigation of System Reliability and Safety When Future Use is Conditioned by Prior Use," (1994).
22. "Statistical Methods in Brittle Fracture Analysis." Guest Lecturer, Illinois Institute of Technology, Spring Semester, 1996.
23. "Hazards Analysis, Systems/Product FMEA and Fault Tree Analysis," Guest Lecturer, Illinois Institute of Technology, Fall Semester, 1996.

PATENT

US Patent: Sharps Disposal Container Full Level Detection System